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Martini Lister M. D. e. S. R. Lond. *de FONTIBUS
MEDICATIS* Angliæ, *Exercitatio altera*. Lon-
dini in Octav. 1684.

I Formerly gave an Account to this Society, of the first Exercitation I published of the Medical Waters of *Spawes* of England; what I have since added to the second Edition of that Exercitation, I have already discoursed in a Paper to this Society. As the Examination of all the *Inland* salt Springs, or Brine Pits called *Witches*; also concerning the specifical difference of Sea salt from the Salt of those *Inland* Brine Pits, &c.

I shall proceed to entertain you with a short Account of the 2^d. Exercitation, now first published, of the Medicinal uses of the said Waters.

And because I could not well be understood when I had occasion to reason of Physical Matters, unless I premised my own thoughts (how true I leave it to others to judge) and for that the main business of health and sickness seemed to me to depend most upon the due concoction of meat in the Stomach, and the good and bad condition of the humours of the Body resulting there from; I have thought it sufficient to explain my self upon these matters; There being (in my Opinion) little else required, to account for all the *Phænomena* of health and sickness, and the right application of Medicines.

Concoction I have explained by Putrification, for that I see no cause to think the change and resolution of meats and drinks to be differently made in the stomach of Animals, from what they are in the open Air; because the capacity of the Stomach and Guts, are verily an other outside of them. The Tabefaction of meat and drink is only therein hastned, and sooner performed; as, for example Wine or Beer, which do not sower of themselves of some
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time in the open Air, do yet turn to meer Vinegar in the Stomach in a trice; and so it is to be understood of the speedy rotting of more solid meats therein.

I have confirmed this Doctrine with many other Arguments, which I refer too, to the Treatise it self.

Now because meats that putrifie, whether of the Herb kind, or of Fish or Flesh, do all therefore abound with volatil and urinous Salt; it is necessary that this Chyle in like manner should be salt: And as it is the great business of Nature, on the one hand, by the *Laiteæ*, to clear the Chyle of the filth of the grosser Excrements; so, after its admission into the habit of the Body, to purge it still of this necessary evil, viz. the urinous Salt, by the Kidnies.

That the Chyle is attracted and sucked into the habit of the Body by the *Laiteæ*; which are the only true mouths of the Body.

That the Chyle first looses its Opacity and whiteness, and becomes limpid in the blood Veins.

That the limpid *Serum* is the old Chyle; which is not distinct from the *Lympha*.

That the *Lympha* or *Serum* is ever a humour totally distinct from the red part of the blood, which turns grumous when cold.

That from those two primary humours, all the other secreted humours of the Body are made.

As from the red grumous Blood, Choller alone: From the new Chyle, Urine. From the same a little cleansed, Milk: from the *Lympha*, Spittle: from the most pure *Lympha*, the genitil humour.

That the cause of secretion is the Pulse: its manner is explained by a magnetic Attraction which each secreted humour hath of its like; also the suction of the secretory Vessels

fels is asserted ; which we think as reasonable to insist on, for the *Exit* of the humours, as to the *Lactea* for the *Entrance* of the Chyle into the Body : both the *Lactea* and all the secretory Vessels being from capillary beginnings not unlike, enlarged in their progress, these outwards, and those inwards.

That the secretion of the Urine is made, at the same time, with the separation of the *Lympha* ; both participating of the same colour, if the *Serum* of the Blood shall chance to be vitiated.

That the rest of the humours, as the *Pituita*, Milk, the Genital Humour, are never coloured tho vitiated ; because they undergo a third secretion at the least.

That the secretion of Choler is very slow ; and for that purpose the Blood is circulated through the Liver by veins only ; and this ought to be so, because the red Blood, from which only it is separated, is not much, perhaps, scarce as $\frac{1}{12}$; and likewise consists of very thick and heavy parts, which therefore seem to require more time in the separation ; and altho the secretory Vessels in the Liver are very numerous, yet, where they joyn, the common *Ductus* is narrow, and very disproportionate.

On the other hand the *Pituita* is thin, and hath many *Exits*, and infinite Vessels to purge it ; as being separated from the great Mass of the *Lympha* or *Serum* in the Veins.

Thus much as to the humours in a natural and healthful State : The humours are thus understood to be vitiated.

That the *Pituita* springing out from innumerate fountains in the Mouth, Stomach and Guts ; also the Choler in the *Duodenum* from its there inserted Orifice ; because they are still carryed on farther in the Guts, do often *re-enter* the Body by the *Lactea*, weakened upon any Occasion.

Whenever this readmission of Choler and *Pituita* happens by the *Lacteæ* (which it does in most Diseases) we are then sick ; the Primary and radical Humours of the Body being contaminated with their own Excrements ; which had been once expelled.

So that the Antients are best understood in this sense, when they tell us, that *Pituita* causes cold Diseases, and Choler, hot ones : that is, the extraneous *Pituita* and Choler readmitted ; not that the habit of the Body did abound with them, or breed them now in greater quantities ; but instead of a total ejection, the evil guests steal in again, and Nature labours as it was in vain.

That the Chyle it self too, is often in fault, and is to be reckoned amongst the vitiating Humours, *viz.* where it is too plentiful from much feeding ; or made of Aliments, that rot not kindly in the Stomach ; this also is to be ejected as supernuacaneous.

From these few things the symptoms of most Diseases are very easily to be accounted for ; As the various affections of the *Urine*, the Spittle, Sweat, &c. Why it is bilious, and sometimes pale and thick, &c. Why this is naturally sweet and thin ; sometimes acid and saltish ; and and sometimes thick like *pus*, &c. and the like, *viz.* according as this or that humour shall be mixt Crude and superfluous Chyle or extraneous Choler and *Pituita* readmitted, or with the red blood it self. Hence also true Indications may be taken for the cure of Diseases ; and the known vertues of simple Medicaments, according as they have been delivered to us by the Antients, more certainly applyed ; because these notions come nearest their doctrine, and consequently will more facilitate a practice deduced therefrom. This Doctrine I have also illustrated with some few cases in Physic ; see the Treatise.

A Theory of Health and Diseases being briefly laid down, as they relate to the humours ; we proceed to enumerate

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the known effects of our *Spaw Waters* : concerning the particulars, see also the Treatise.

This also being dispatcht ; the natures and properties of each Ingredient is proposed to be examined : And because nothing is new therein, which the Antients have not well accounted for, but the growing Salts of the Niter of Limestone, and abortive Vitriol, we insist chiefly upon the examination of these two.

And affirm, as the perpetual properties of them, that they two alone, of all the Minerals in Nature, every where petrify, as well as within our Bodies, as without us ; and that it will be hard to find a third thing in nature that does so.

That Petrification is best explained by Magnetism : and that as Iron toucht with a solution of blew Vitriol immediately attracts the Copper and firmly petrifies upon it ; so do the teeth of some men (the only naturally naked bones of the body) attract the abovesaid petrifying juices contained in meats and drinks. But of this I purpose to discourse elsewhere more at large.

That these two Lapidescant Juices of the *Spaw Waters* are the only efficient, and in good part the material Causes too of the Stone in Man and other Animals ; crude humours, being occasionally more or less implicated, as they more or less abound in bodies, and wrapped up in the coition of the Lapidescant Juices ; which thing Holly Wood does well illustrate ; it being observed above any sort of wood, most inclined to petrification ; because of its abounding with a *viscous Humour* ; which is the Birdlime in use.

And because it may be objected, that many are troubled with the stone, and but few that drink of the *Spaw waters* ; I answer, that in this sense, all waters are Spaws, but much more such as are so denominated : as all the well waters of this City, and *England* do testify, and therefore no man upon this account is free from the Stone ; and whoever shall

attentively examine the Urine of Mankind, will find none free; unless the strumous and gouty; of which more I design elsewhere.

The Examination of *Van Helmont's* Doctrine about the Stone; and the Arguments for this which I have laid down, I omit, and refer to the Treatise.

If Iron be in the calcined *Calculus Humanus* the Loadstone, if carefully applyed, will extract it, and demonstrate it to us; as, in truth, it hath often done, when I have applyed it for that purpose: And if Limestone, the Calcination also is necessary; because otherwise the Fat will hinder the Acids to work on it; but a calcined bone will wholly be dissolved by any Acid.

Having dispatcht these things, we come to the Medicinal uses of the *Spaw Waters* in *England*; which we examine upon the Doctrines of other Writers of our English *Spaws*; viz. choosing out the particulars wherein they mostly agree.

As *Hypochondriac* Melancholy; an ill habit of body from any chronical Disease, as long Agues, the Scurvy, &c. The Stone of the Kidnies and Bladder; the Gout, Worms, Barrenness of Women, &c.

The excellency of the waters in the first case is deduced at large, from the cause of that disease; which we take to be, too great a fullness of Chyle. That they are less fit, and not to be given to cachectic people, without great Caution and Advise: that they are not to be used in the Stone and Gout, which two Diseases they can no ways help, but by accident: the reason of the Gout being from a stop and dejection or coition of some stony Particles upon the Membranes of the bones in the more narrow passages of the Joynts

That Steel hath been of old noted as infamous for causing barrenness in women: which ill Character of that Medicine I doubt is almost forgot in this Age; and that
therefore

therefore *abortive* Vitriol (the grand Ingredient of atramentous Waters) ought to be much more suspected in that case. Altho the natural hot Waters, outwardly used in *Laths*, have been, by the same antient Authors, as much famed for the contrary good effect upon women

The use of Oyntments before and after Bathing to be brought into use again: and the debauch of staying long in the hot waters, as it is now practised with us, to be avoided, &c.

*Nonvelle Maniere de Fortifier les places par Monsieur
Blondel, &c. a la Haye, 1684.*

THE *Author* having considered the *Art of Fortification* as it is at present practised, finds it not to have received proportionable improvements to the *Art of Attacking*. This appears sufficiently in the success of the *K. of France*, who usually makes himself master of these *Towns* in 10 days, which formerly were held capable of resisting as many *Months*. There is therefore laid down a new way of *Fortification*, which may take away from the *Besiegers*, the advantages they draw from their number of *Men* and *Cannon*; and give the *Besieged* room for the making use of more *Cannon*, and supplying the want of men. This is principally done by a vast enlargement of the *Flanks*, and *Demigorges* so as to be capable of three very large *Batteries* one over another, and sometimes a *Cavalier* at top, all which in some *Figures* may hold 100 or 120 *Cannon*, sufficient to dismount any *Battery* that may be raised on the *Contrescarpe*. For the better explaining the *Work*, there are 12 *Tables* added. The 1. is to shew the practise upon all sorts of *Angles* of *Poligons* given, the 2. 3. 4. and 5. contain part of several sorts of *Poligons* fortified after this method. The 6th. is the *Plane* of a *Tenaille* made large, and representing exactly all the parts of this *Fortification*. The 7th. is the same *Plane* with its *profile*. The 8th. is a *Table* for calculating the *Angles* in several *Poligons* fortified after this manner. The 9th. is a *Table* for calculating the lines in the same *Poligons*. The 10th.

10th. is to shew the easiness there is in reducing other *Fortifications* (provided they have second *Plans*) to this manner, without altering the *Face* of the *Bastion*, the *Motes*, or the *Outworks*. The 11th. is the *Plane* of the *City* of *Dunkirk*, with the *Antient Fortifications*, upon which are placed also the *new ones* (of the *Author*) that both *Methods* may be the better compared together. The 12th. is a *Plane* of the *City* of *Mastricht* and its *old Fortifications* but reform'd after this *new manner*.

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The *Breviat* of this *Book* is not mention'd in the *Contents*, because it was thought at the time when the first sheet was printing, the preceding *Discourses* would have been sufficient for the *Quantity* of paper usually allow'd for each of these *Traits*.

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